Railroad Relocation
It was assumed that railroad relocation would be required wherever the alignment shares a corridor with an existing operating railroad. This cost was reflected in the overall capital cost for each alignment option. Because railroad relocation presents other challenges, this issue was also considered in the ranking of right of way issues, as described below.

Building Items
For each alignment option, the "placeholder" cost values were used for Building Items, including terminal and site development/parking. For the Bakersfield-to-Sylmar Segment, suburban stations were assumed at Palmdale (except for Options 1 and 1A, which do not pass through the Antelope Valley) and Santa Clarita. For the Sylmar-to-Los Angeles Segment, an urban station was assumed at Burbank and a terminal station at Los Angeles Union Station. In rating the relative capital costs for alignment options, the Sylmar Station alternatives were not considered.

Except as described above in establishing costs for the alignment options, capital costs for individual station options were not calculated due to the lack of sufficient data to differentiate between costs of stations with similar features and/or locations. Rather, station options were rated against the capital cost category based on qualitative factors, such as probable ease of construction, significant earthwork or structures, and accessibility.

Tunnels
All tunnels within the region were considered to be constructed with the use of a tunnel boring machine (TBM). Two single-track tunnels were assumed for each alignment. For any tunnel longer than 8 miles (12 km) for which intermediate near-grade access would not be possible, a parallel evacuation tunnel was also assumed for each pair of single-track tunnels. The unit cost of an evacuation tunnel was assumed to be 75 percent of the cost of the primary tunnel pair.

The cost of a seismic chamber was provided for each tunnel crossing of a known fault. For "major" fault crossings, including the Garlock Fault and the San Andreas Fault, a unit cost of $50 million was used for the seismic chamber required for the tunnel pair. Seismic chambers at lesser faults, including the White Wolf/Wheeler Ridge Fault and the Santa Susana Fault near Sylmar, were assigned a unit cost of $25 million.

Tunnel portals were also considered to be a significant cost factor. The widened opening required to accommodate wind resistance at the tunnel opening, and the cost of mobilizing the tunnel boring machine, were estimated at $12 Million per portal.

Trenches
Open trenching is proposed within the Sylmar-to-Los Angeles segment. The unit cost of the trench was assumed to be twice that of a retaining wall. Track within trench limits was designated as at grade or slab track. Appropriate earthwork quantities were calculated and included in the estimate for trench excavation.

Miscellaneous Structures
Because their application has not yet been defined, crash walls and sound walls were neglected in this analysis. The exception is in the Bakersfield connection segments,

where crash walls were applied at locations where bridges cross over the alignment, and sound walls were assumed adjacent to all built-up areas.

Utilities Relocation and Right of Way
Utility and right of way costs were calculated based on the entire alignment length, including tunnels and structures. Characterization (dense urban, urban, suburban, undeveloped) of these cost factors was made by reviewing USGS maps.

Right of Way Issues/Cost

In addition to inclusion in capital cost estimates, anticipated right of way issues and related costs were evaluated based on qualitative factors.

Adjacent Development
Right of way evaluation factors included density of adjacent development and local urbanization. Alignment and station options in close proximity to dense, established development were ranked lower. Potential for requireing right of way takes from multiple individual property owners, particularly residential owners, were scored least favorable.

Railroad Relocation
While ranking more favorable as continuous, linear rights of way, the use of existing railroad corridors would require the relocation of operating railroad tracks. The requirement for railroad relocation reflected negatively on the alignment ranking.

Regulated Rights of Way
Features such as national parks, preserves, and flood control channels, that serve to limit the unrestricted use of proposed right of way, were also considered in rating right of way issues. It was assumed that these regulated areas would require additional permitting, biological mitigation or habitat restoration and constrain construction operations. Options that pass through publicly regulated areas, therefore, were rated less favorably for this factor. These factors were considered less important where the alignment lies in tunnel rather than above ground.

2.2.2 Environmental Evaluation Criteria

The objectives related to the environment and the criteria used for evaluation are consistent with NEPA and CEQA. The environmental constraints and impacts criteria focus on key environmental issues that can affect the location or selection of alignments and stations.

To identify potential impacts for the alignments and station locations, a number of readily available resource agency-approved Geographic Information System (GIS)-compatible digital data sources were used along with published information from federal, state, regional, and local planning documents and reports. For evaluation of alignments and stations, right-of-way widths dictated by engineering requirements were utilized to identify the amount of area within each segment containing certain characteristics. Some environmental issues required using various buffer widths that extended beyond the conceptual right-of-way for the segments. Where noted, field reconnaissance was required to view on-the-ground conditions and to provide relative values of certain resources.

B. BAKERSFIELD-TO-LOS ANGELES ENVIRONMENTAL METHODOLOGY VARIANCES

Visual Quality Impacts

The potential impacts to visual quality of the High-Speed Rail (HSR) alignment alternatives and station locations were evaluated based on the anticipated changes in current views of first tier sensitive viewers.

Four basic criteria were used to evaluate the project options:

- The location of sensitive first tier viewers relative to the project.
- The length that sensitive residential uses occur along the alignments.
- The distance of the sensitive uses from the project features.
- The extent of the change in visual character that sensitive viewers will experience with the various alignment and station options.

Sensitive viewer groups include residential viewers, park users and students and faculty at school sites. These sensitive first tier viewer groups were identified, as well as the extent of residential uses along the alignments. An alignment with more adjacent residential uses was considered to have a more negative impact than alignments with fewer adjacent residential uses. For example, an option that has residential uses along five miles of the alignment would be rated more negatively than one with residences along 0.5 mile of the alignment. Impacts to schools and parks were quantified by the number of locations with first tier views. Alignments having a greater number were rated more negatively. Project features that cross through a campus or park were rated more negatively than project features adjacent to these sensitive uses.

The anticipated visual impacts were further screened by the distance of the project features from the sensitive viewers. Project features closer to sensitive viewers were rated as having as greater negative impact than features only visible at a greater distance.

Lastly, an evaluation was made of the extent of the change in the visual character that the sensitive viewer will experience. For example, an elevated structure proposed in a low density, rural area along a rural arterial would be a greater and more negative visual change than an at-grade rail segment adjacent to an existing freeway in a high-density, urban residential area. Similarly, project features proposed for undeveloped, rugged areas that will require extensive earthwork were rated more negatively than sites that require less earthwork. Features sited in areas proposed for Significant Ecological Area (SEA) status were rated as having a negative visual impact.

All of these criteria were evaluated to determine the ranking of alignments and stations relative to their compatibility with existing views.

Water Resources

The potential impacts to water resources of the High-Speed Rail (HSR) alignment alternatives and station locations were evaluated based on the number and sensitivity level of waters and potential wetland or riparian habitat resources crossed by or lying immediately adjacent to each alignment and station option. Drainages identified as "blue-line streams" on USGS topographic mapping were counted and the relative size of each feature was estimated based on the associated watershed area.

The potential sensitivity of water resources is rated as follows:

> *Low sensitivity* is indicated for minor tributary streams and small ephemeral drainage courses. These resources are still likely to be subject to the regulatory authority of the U.S. Army Corps of Engineers (Corps), the California Department of Fish and Game (CDFG), and the State Water Resources Control Board (SWRCB), if affected by the project. However, due to their small size and the limited volume of water carried, such "waters" are not likely to exhibit substantial riparian or wetland vegetation and requisite mitigation is anticipated to be minimal although minor impacts would occur due to the placement of culverts or diversions for at-grade crossings. Where such resources occur above or in close proximity to tunnel segments, it is unlikely that adverse impacts would occur, although the possibility cannot be ruled out.
>
> *Low to moderate sensitivity* is attributed to large tributary streams and small ponds or springs. Such waters potentially support some riparian vegetation and impacts could be considered significant. However, where bridges are proposed, it is assumed that adverse impacts to such resources will be avoided by strategic placement of abutments and footings such that direct impacts are avoided, and such crossings are not counted for the purpose of this comparative evaluation. The potential for adverse effects to occur to such resources above or near tunnel segments is still low, but is more likely than for minor tributaries.
>
> *Moderate to high sensitivity* is attributed to major tributaries, mainstem drainages, and large ponded areas. Larger streams and ponds generally contain substantial stands of riparian vegetation, portions of which may meet federal wetland criteria. Adverse effects to such areas would require substantial mitigation measures, and federal guidelines (Section 404(B)(1)) require that direct impacts be avoided to the maximum practicable extent.
>
> *High sensitivity* is attributed to large bodies of open water and extensive riparian habitat associated with major drainage courses.

In the City of Los Angeles and other urbanized areas (for example, Union Station Alternatives and the San Diego Approach Segments), station locations or route segments that may involve crossing channelized drainage courses, such as the the L.A. River, would not result in impacts to wetlands or riparian habitat and would cause only minimal effects, primarily involving potential reductions of water quality during construction, as these drainages do not generally exhibit significant biological resources in the areas of the proposed project alignments and station locations.

Floodplain Impacts

The alignments and station location were evaluated against GIS data for known 100 year and 500 year floodplains. Alignments and station locations subject to more serious flooding impacts were ranked scored lower than those with little or no flood hazard.

Threatened and Endangered Species

Threatened and endangered species analysis was based on information obtained from the California Natural Diversity Database (CNDDB), contacts with various resource agencies such as the U.S. Fish and Wildlife Service (USFWS), published scientific literature and personal communications with experts on individual sensitive species.

Locations of sensitive species and their habitats are subject to change as a result of seasonal variation, urbanization and other disturbances. Those alignments and station locations that would affect the greatest number of threatened and endangered species were ranked lower than those affecting fewer sensitive species.

Environmental Justice Impacts (Demographics)

Pursuant to Executive Order 12898, Federal Actions to Adress Environmental Justice in Minority Populations and Low-Income Populations, the total number of potentially affected persons and households was calculated within a 1,400-foot (427 m) buffer of alignments and stations. This was done using available 1990 Census data on a GIS database. Where portions of census tract/block areas were within the buffer zone a percentage of the qualifying individuals/households within the block was used based on the percentage of the area within the buffer zone. The greater the number of potentially affected individuals or households, the greater the potential impact and the lower the score for the alignment or station location.

Community and Neighborhood Impacts

Aerial photography and land use planning data,supplemented by field review was used to determine if communities and neighborhoods would be physically or psychologically divided by program elements. At-grade alignments were considered to constitute a physical division, while aerial structures were seen as a psychological division. Program elements with a greater potential to result in such impacts were given lower scores than those with less potential to create such effects.

Farmland Impacts

Alignments were compared to digital farmland mapping and those affecting a greater area of farmland were given lower scores. In some areas, farmland has been developed for other uses and was not counted in the analysis. The issue of pacel division was also factored into the review.

Cultural Resources

The potential impacts to cultural resources for the alignment alternatives and station locations were evaluated using two criteria. First, each element of the program was compared to the existing Project GIS database, and ranked as to potential impacts on known cultural resources. For example, each station location was compared to the GIS database, to determine if cultural resources had been recorded in or near the station location.

Second, given that the present GIS database is very incomplete relative to cultural resources, each element of the program was examined in relation to three additional factors known to archaeologists to increase the potential for discovery of previously unknown cultural resources. These are:

- proximity to major water sources
- geographic setting
- proximity to towns and cities

The first two factors are especially relevant to prehistoric cultural resources, while the last factor is relevant to historical cultural resources. These factors were considered

based on the cultural resources consultant's professional experience in southern California, and a recognition of the statistical probability that sites are more likely to occur in these settings.

A comparison of two possible HSR alignments in the Antelope Valley, the Aqueduct Alignment versus the SR-138 Alignment, illustrates how this process was used. The Aqueduct Alignment lies at the base of the San Gabriel Mountains, a geographic setting more likely to encompass prehistoric sites than the flat open valley floor setting of the SR 138 Alignment. The Aqueduct Alignment is also more likely to encounter prehistoric resources due to several streams that flow out of the mountain front, making it an area more suitable to human habitation, versus the dry valley floor. But the SR 138 Alignment passes through a much larger portion of the cities of Palmdale and Lancaster, greatly increasing the probability that this route will encounter historical resources.

For Union Station Alternatives and evaluation of San Diego Approach Segments in the downtown area of the City of Los Angeles, any location or route has at least a moderate to high probability to encounter cultural resources. Again, geographic setting and urban neighborhood factors suggest that certain routes and locations have a higher probability for prehistoric and historical cultural resources. Alignments and station locations known to have or considered more likely to have cultural resources present were ranked lower than those less likely to encounter such resources.

Parks & Recreation/Wildlife

The potential impacts to parks and recreation areas and wildlife refuges of the alignment alternatives and station locations were screened based on proximity of parks and recreation or wildlife refuge resources to the program elements. As specified in the Task 1.5.2 Evaluation Methodology, visual impacts were considered to first row receivers, if parks were not directly impacted. Noise may also be a factor for some park and recreation facilities, but was not considered in this evaluation.

In the few cases where alignments cross existing park facilities, this was considered to have a high impact to the park resource, unless the crossing occurred primarily in tunnel. In the majority of cases, where the alignments pass near existing parks, the impact was considered in relationship to the park's present environment. For example, if a park setting was rural, or a quiet urban area, the impact of an alignment was considered to be moderate or high. In the case of a park located adjacent to existing railroad lines or freeways, addition of High-Speed Rail was considered a low impact. However, if the alignment element passed an existing facility on bridge/structure where previous rail or freeway use was at-grade, this was considered a moderate impact.

Soils/Slope Constraints

The screening of soils/slopes was performed in general conformance with the criteria set forth in the Screening Methodology. Soils were evaluated on the basis of both the soil and geologic formation data available on a statewide basis in addition to our general knowledge of characterisitics of each of these units. Soil shrink/swell, or expansivity, was evaluated in the project area by comparing alignments/stations with the extent of mapped expansive soil units/formations. Soil erodibility was similarly evaluated on the basis of extent and distribution of soil units, geologic formations, and experience. Slope stability was evaluated primarily on the basis of geologic formations with known low shear strength and/or propensity for landsliding. Slope steepness was not evaluated

strictly on the basis of slope gradient as it was determined to be less representative of the constraint than the presence of low strength, poor performance geologic formations.

Seismic Constraints

Seismic constraints were also evaluated in general conformance with the recommended methodology. However, in lieu of solely analyzing seismic constraints on the basis of active fault crossings, historic seismicity and probabilistic seismic hazard assessment (PSHA) maps provided by the states' geologic agency (CDMG) were also used. Further, seismic constraints were subdivided into three basic potential hazards including: 1) presence of active fault crossings, 2) PSHA ground motion maps, and 3) liquefaction potential by comparing PSHA ground motion maps to formational maps to identify areas where younger, soft soils may coexist with high ground motion areas. Detailed CDMG maps depicting the seismic hazard zones are available for most of the Los Angeles Basin and San Francisco Bay areas but did not provide complete coverage for the project area and were thus not used. However, findings of those maps were compared to our independent conclusions and were generally consistent. Subsidence associated with groundwater withdrawal in the San Joaquin Valley was also addressed within seismic constraints as required. This evaluation was performed geographically based on available maps depicting extent, magnitude and timing of subsidence within the project area.

Hazardous Materials

Each alignment option and station option were evaluated based on the number of Comprehensive Environmental Response, Compensation, and Liability Information (CERCLIS), State Priority List (SPL), and State Clean-up List (SCL) sites that were close to proposed alignments or station locations. The alignment options and station options were also evaluated based on the number of Super Fund sites that were close to the proposed alignments or station locations. The ratings in the table were generally given as follows: CERCLIS, SPL, SCL < 20 = 4; CERCLIS, SPL, SCL $\geq$ 20 = 3; CERCLIS, SPL, SCL $\geq$ 50 = 2; CERCLIS, SPL, SCL sites and one Super Fund site = 2; CERCLIS, SPL,SCL sites and more than one Super Fund site = 1.

3.0 ALIGNMENT AND STATION DEFINITION

After review of all of the prior studies, consideration of technological advances and high-speed rail operations/maintenance experience and current environmental concerns, the P&D Project Team has identified the following alignments for consideration during the Screening Analysis:

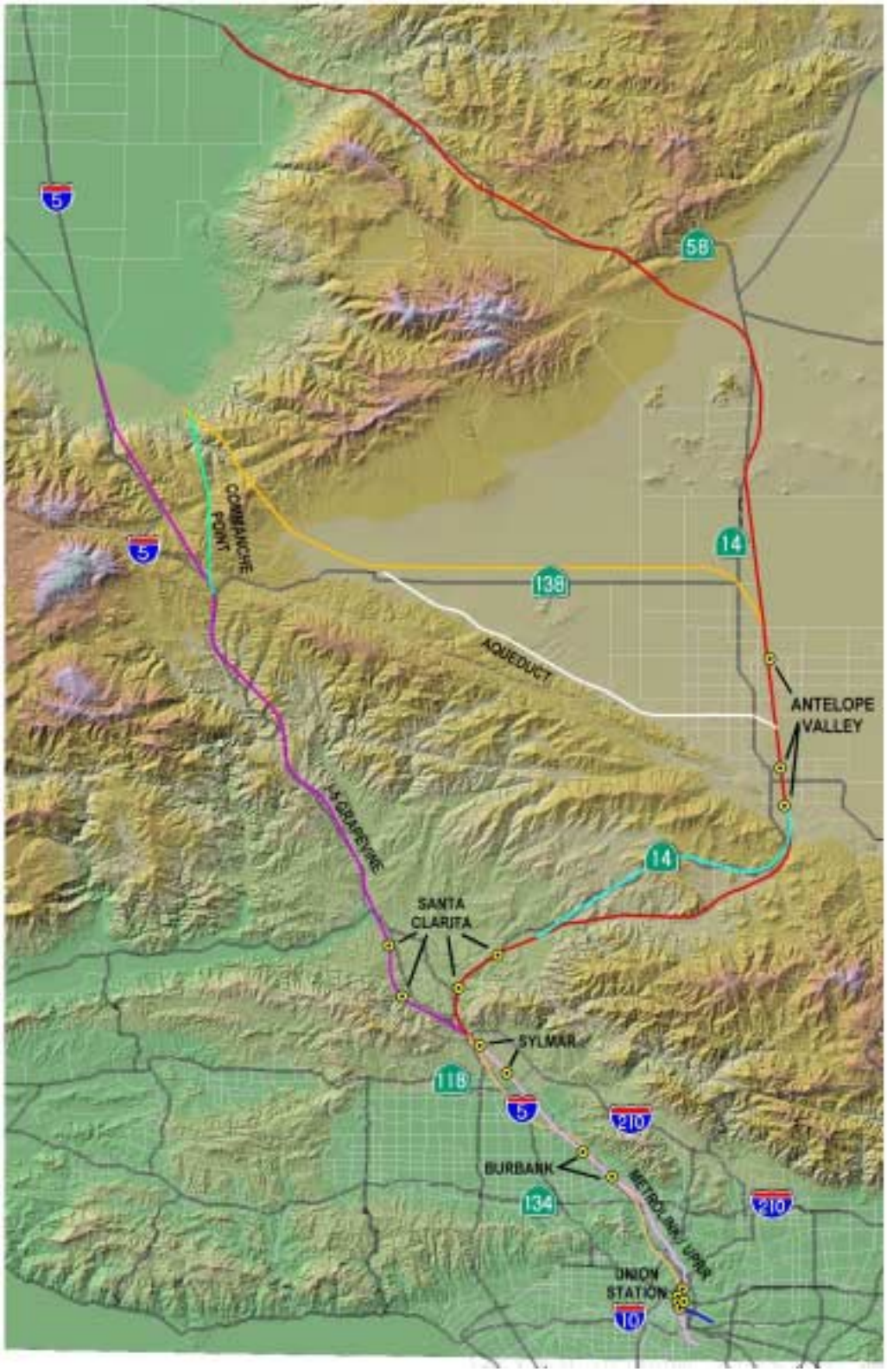
1) the I-5 "Grapevine" corridor from Bakersfield-to-Sylmar, including an alignment at the north end of this segment that diverges eastward from I-5 toward Comanche Point.
2) the SR-58 and existing Burlington Northern Santa Fe Railroad (BNSF) corridor through the Tehachapi Mountains.
3) the existing UPRR corridor through the Antelope Valley.
4) the California Aqueduct corridor in the Antelope Valley as an alternate to going on SR-58 and the existing rail route.
5) a new alignment as a variant to the Aqueduct corridor, generally following SR-138 across the Antelope Valley from a mountain crossing at the west edge of the Valley (near the California Aqueduct) to the UP corridor running through Lancaster and Palmdale.
6) the SR-14 corridor from Antelope Valley to Sylmar, with an alternate through Soledad Canyon generally following the existing rail corridor.
7) Sylmar-to-Los Angeles along two alternative corridors that are defined by the existing Metrolink/Union Pacific Railroad (UPRR) alignments and the I-5 Freeway, plus a hybrid of these two that uses the railroad alignment on the north end and the I-5 corridor on the south end.

The new SR-138 alignment was proposed because it is straight, gently sloping, allowing for high operating speeds, and traverses an area with little development. It would allow for high operating speeds that may compensate for the additional length of the Antelope Valley route. All of these alignments are shown on Figure 3.0-1.

Station locations were evaluated for Antelope Valley, Santa Clarita, Sylmar (in place of Burbank and/or Santa Clarita), Burbank, and Los Angeles Union Station.

In the Antelope Valley, the site of the proposed Palmdale Transit Center, the Lancaster Metrolink station and a downtown Palmdale station were reviewed. In Santa Clarita, along the I-5 sites at SR-126, Magic Mountain Parkway and near the Calgrove Boulevard/The Old Road interchanges of the I-5 are being reviewed, in addition to sites at the San Fernando Road and Via Princessa interchanges along SR-14. At Sylmar sites at Roxford Street close to the I-5/SR-14 junction and at the existing Metrolink station at Hubbard Street will be evaluated. In Burbank a site adjacent to the Burbank Airport along the existing rail corridor is being examined. Another site at the existing downtown Burbank Metrolink station is also under consideration since it could serve transfers from the Ventura Metrolink line. Seven sites were reviewed in the vicinity of Los Angeles Union Station, including the existing Union Station, Terminal Annex, the Cornfield site, two locations on the south side of SR-101 and two adjacent to the Los Angeles River.

Figure 3.0-1
Alignments and Station Locations to be Considered for Screening



Source: P&D Consultants, Psomas

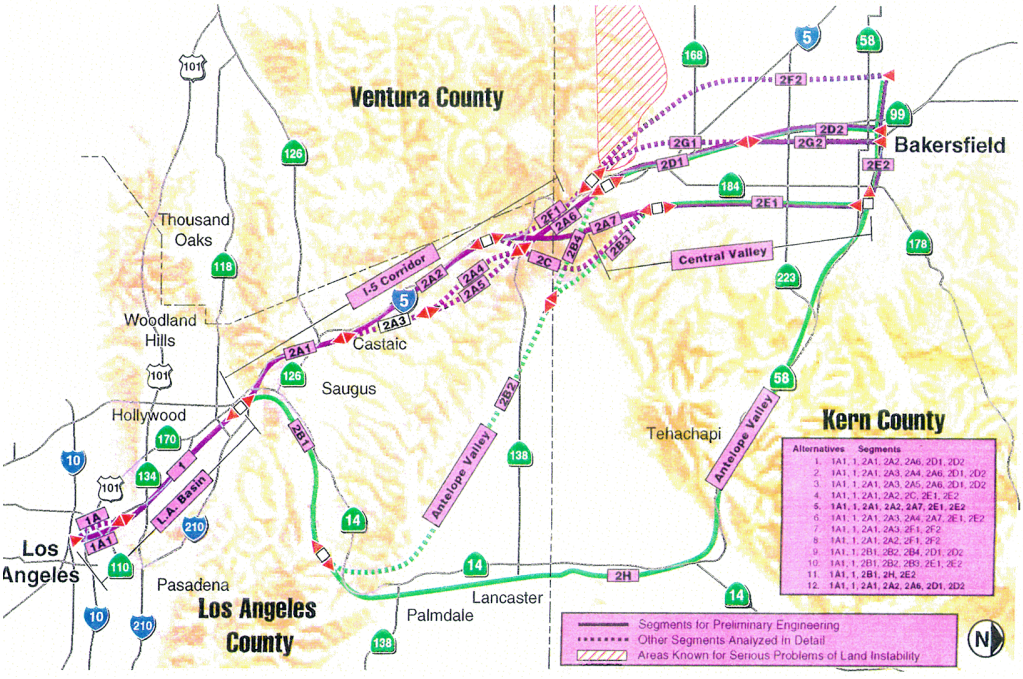
3.1 PREVIOUS ALIGNMENT AND STATION OPTIONS STUDIED

Over the years, a broad array of alignment and station alternatives have been evaluated for a high-speed train connection from Los Angeles-to-Bakersfield. In each case the alignment options were constrained by dense development and rugged terrain. The development of alternatives spans a period from the early-1990's to the current day, through three different state agencies with the purpose of forwarding a statewide high-speed rail project. The following sections summarize this process.

3.1.1 Alignments Reviewed by Caltrans' (Los Angeles-Bakersfield High-Speed Ground Transportation Preliminary Engineering Feasibility Study, Dec. 1994.)

In 1990 Proposition 119 funded study of a high-speed crossing of the Tehachapi Mountains. The study was initiated in 1993 to examine alignment alternatives from a technical, cost and environmental impact perspective. As shown in Figure 3.1-1, three potential Los Angeles-Bakersfield routes, with many alignment variations were examined. All routes followed the existing UPRR/Metrolink corridor (owned by the Southern Pacific Railroad (SP) at the time of the study) through the Los Angeles Basin from Union Station. A number of alignment variations were evaluated in the vicinity of I-5 between Bakersfield and Santa Clarita and through the Antelope Valley. Along the I-5 corridor alignment segments closely approximating the currently proposed I-5 alignment were preferred over the Trough Canyon and Cienaga Canyon segments because the canyon segments entail greater tunneling and more severe grades. These factors also lead to more severe construction impacts and more disturbances to environmentally sensitive areas.

Figure 3.1-1
Caltrans Alternative Alignments



Source: Summary Report, Los Angeles-to-Bakersfield High-Speed Ground Transportation Preliminary Engineering Feasibility Study, November 1994

Through Antelope Valley, detailed analysis compared routes following the California Aqueduct using existing transportation rights-of-way closer to current population centers. Although the SR-58/UPRR (then SP) and Aqueduct alignments had similar lengths, travel times and costs within the Antelope Valley, only the SR-58/UPRR alignment was subjected to more detailed evaluation because it had fewer negative environmental impacts—particularly residential impacts—and provided more siting opportunities for an Antelope Valley Station.

While all options were documented in detail, two routes were subjected to the more detailed evaluation (see Figure 3.1-2). One route runs along the basic alignment of I-5 and enters Bakersfield via Union Avenue, Edison Road or a new freeway alignment. The other alternative follows the UPRR (then SP) right-of way parallel to SR-14 through the Antelope valley and SR-58 through the Tehachapi Mountains to Bakersfield. At the time the Antelope Valley option was deemed preferable because it permitted crossing the Garlock Fault at grade, offered better station opportunities and minimized negative environmental impacts such as noise, residential and commercial impacts.

This study looked at six possible locations for stations south of Bakersfield. They included: Los Angeles Union Station, Burbank (downtown and Burbank Airport), Santa Clarita (along I-5 near Magic Mountain and along SR-14 at Via Princessa) and Antelope Valley (a single, combined station for both Palmdale and Lancaster).

3.1.2 Alignments Reviewed by the California Intercity High-Speed Rail Commission (Final Report, High-Speed Rail Summary Report and Action Plan, Dec. 1996.)

During the early-1990's the California Intercity High-Speed Rail Commission conducted a three-phase review of high-speed rail alternatives. Phase 1 comprised an initial broad-scale review of route alternatives between Los Angeles and the San Francisco Bay Area to identify which corridors had the most potential for high-speed rail service. Evaluation criteria defined by the goals of maximizing ridership, minimizing costs and avoiding potential environmental constraints were applied.

Phase 2 of this analysis involved a more comprehensive evaluation of the I-5 and Central Valley routes with alternative mountain passes and urban alignments as well as station locations and termini. Conceptual plan and profile drawings were prepared and operations and maintenance costs were estimated; the environmental analysis identified potential impacts and constraints for the natural environment, social/cultural resources, land use and engineering/environmental constraints. The corridors were then ranked. Phase 3 involved sections of the system that are outside of the Los Angeles-to-Bakersfield study area.

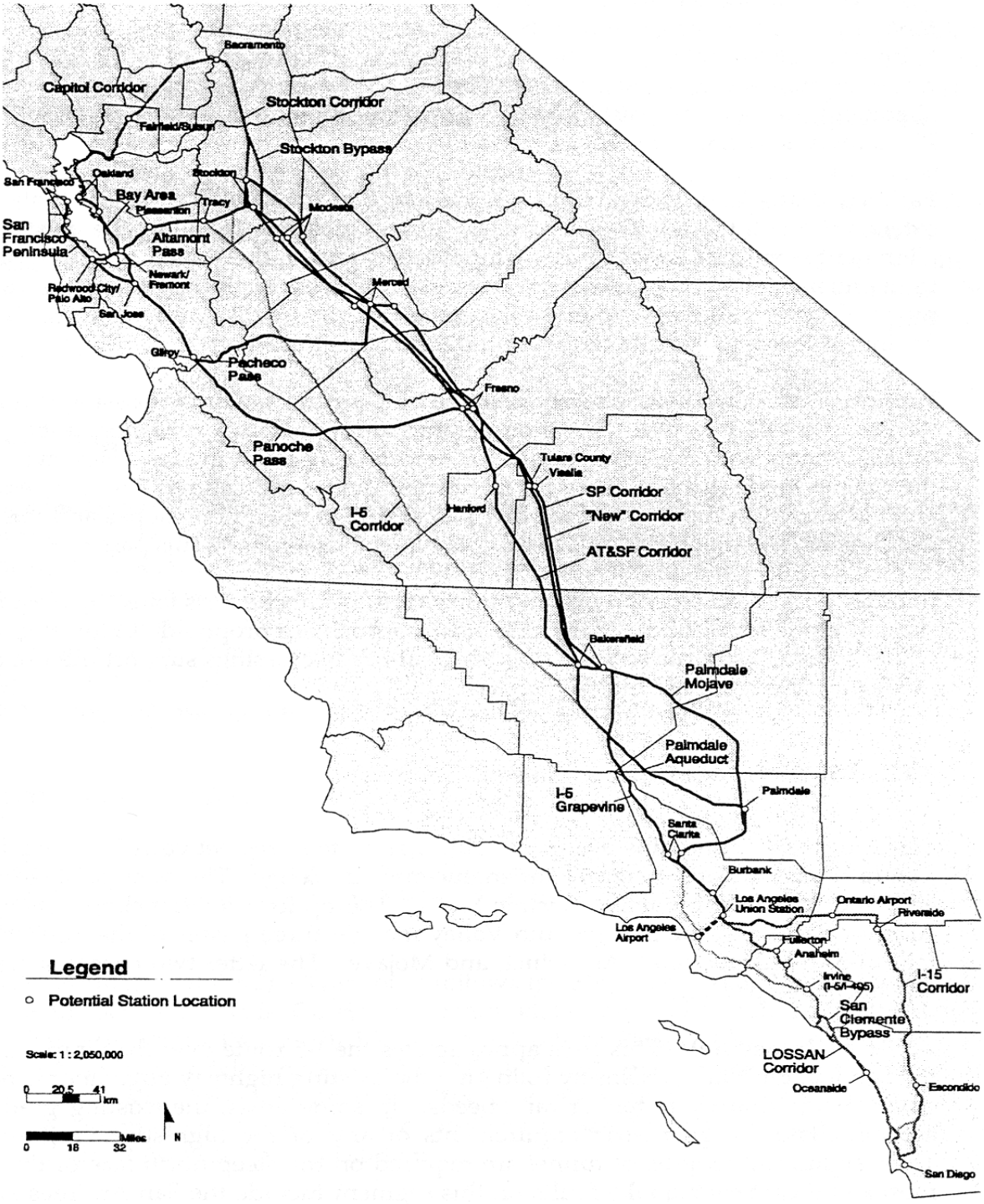
For the Los Angeles-to-Bakersfield region Phase 1 of this analysis looked at a Coastal, I-5 and Central Valley (SR-99) Corridor. The Coastal Corridor followed the existing rail corridor towards Ventura County, diverging from the north-south UPRR corridor at Burbank Airport. In the Los Angeles-to Bakersfield region, the I-5 Corridor is similar to the I-5 alignment currently under consideration. The SR-99 Corridor follows the I-5/SR-14/SR-58/UPRR rail corridor that also continues to be under consideration. Two termini, Los Angeles Union Station and Los Angeles International Airport (LAX) were considered. The route considered to LAX was along I-405 from San Fernando. During Phase 2 the alignment along the California Aqueduct through the Antelope Valley was added, crossing the Tehachapi Mountains at the western end of Antelope Valley, east of the crossing on the original I-5 alignment (see Figure 3.1-3).

During the Phase 1 analysis the SR-99 Corridor, including Bakersfield and the Antelope Valley, was ranked best for high-speed rail service serving both end-to-end and intermediate trip markets Overall, the SR-99 Corridor was found to have high compatibility with the existing and

Figure 3.1-2
Caltrans Route Alternatives

Source: Summary Report, Los Angeles-to-Bakersfield High-Speed Ground Transportation Preliminary Engineering Feasibility Study, November 1994

Figure 3.1-3
IHSR Commission Potential Alignment Segments



Source: Final Report, High-Speed Rail Summary Report and Action Plan, December 1996

planned development. The I-5 Corridor was found to have the shortest distance, lowest capital costs, fastest Los Angeles to San Francisco Bay Area travel times and highest ridership forecasts. But, it was also found to have the lowest attractiveness for serving intermediate markets since it does not traverse many developed areas. This corridor was found to have higher impacts on threatened and endangered species, but low impacts for other environmental factors.

The Coastal Corridor was found to be best suited for service at speeds below those of high-speed rail and would not support travel times fast enough to capture a significant share of the end-to-end market. Although the potential exists to capture intermediate markets, these would be best served by a slower, relatively inexpensive service using existing rail infrastructure. The Coastal Corridor was found to have high visual impacts, high population disturbance and a high number of historic resources, while having low impacts on farmland and water resources and few major earthquake fault crossings. As a result of the Phase 1 analysis, the Coastal Corridor was eliminated from further consideration by action of the IHSR Commission in May 1995. The SR-99 and I-5 Corridors were retained for further study during Phase 2.

During the Phase 2 analysis, the SR-99 Corridor was favored over the I-5 Corridor for focusing the best use of planning resources. It had substantially fewer impacts on wetlands and endangered the threatened species, fewer socioeconomic and environmental impacts, and lower estimated mitigation costs. The SR-99 corridor was estimated to be slightly more costly to build due to its longer length and the increased cost of construction in developed areas.

Of the two routes and termini in Los Angeles, LAX and Los Angeles Union Station, the route to Union Station along the existing rail corridor had high socioeconomic and environmental justice impacts and low-to-moderate impacts for all other categories. The I-405 route to LAX had medium-high land use compatibility, visual, noise, and electromagnetic field impacts and medium-high regulatory compliance and mitigation costs. Capital costs were found to be significantly higher for the LAX due to longer length, a higher proportion of aerial structure, right-of-way and required reconstruction of I-405. A terminus at Union Station was also found to result in higher ridership and revenue, lower capital, operating and maintenance costs and to facilitate future extensions to San Diego via Orange County or San Bernardino/Riverside. The Commission also decided that Los Angeles Union Station would be the most effective Los Angeles terminal location, concluding that the means of connecting the potential LAX station with Union Station should be considered separately.

Among the alignments crossing the Tehachapi Mountains, the I-5 route had high wetlands, air quality and regulatory compliance impacts. The Mojave Pass (SR-58) and Aqueduct both had low-to-moderate impacts. Capital costs were determined to be lowest for the I-5 mountain crossing, highest for Mojave Pass, with the Aqueduct alignment falling between. As a result of this review the IHSR moved to focus further study on the SR-99 Corridor. Action on the mountain passes was postponed until further data became available. For the purposes of defining a system for further consideration, the Commission's recommended high-speed rail system (Figure 3.1-4) incorporated the Mojave Pass alignment and included the Palmdale Airport station and a Santa Clarita station along SR-14..

3.1.3 Stations Reviewed by the California Intercity High-Speed Rail Commission

Station selection is one of the major considerations that will affect the effectiveness of high-speed rail service. The number and spacing between stations and local access to station sites are critical to the tradeoff between system accessibility to riders and line haul travel time. Key to good access is intermodal connectivity that facilitates the seamless transfer between travel modes and keeps system access time low. The general criteria for identifying station service